

NOTES ON THE ALOES OF ANGOLA

With Descriptions of three New Species

By G. W. REYNOLDS

(With Plates VI—XI)

During June and July 1959 I covered about 5,000 miles travelling through as many parts of Angola as could be reached by touring car with a trailer-caravan, investigating the Aloes. Deep sand and shocking road conditions prevented me from reaching some areas in the north-east and south-east parts of the territory.

At least five new species were found, three of which are described hereunder. Some species were studied at their recorded type localities, and the distribution of all species seen was recorded.

The first to collect Aloe material in Angola was Dr. Friedrich Welwitsch during his extensive travels in the years 1853 to 1861. This material included the types of six new species subsequently described by Baker in *Trans. Linn. Soc.* ser. 2, i, 263-4 (1878). Of these, it seems that the first species collected was *A. littoralis* Bak. in May—July 1854, near Luanda.

A. littoralis grows abundantly north and south of Luanda, extending southwards to Lobito, Benguela, Sá da Bandeira and into South-West Africa. Along the Lobito—Silva Porto road, *A. littoralis* was observed at mile 40 (2,700 ft.), and to mile 76 which is 16 miles east of Bocoio (3,800 ft.). Also abundant from Sá da Bandeira eastwards to Vila Paiva Conceiro (Quipungo) at 4,200 ft., c. 14° 50' S., 14° 33' E.

There is now no doubt that *A. rubrolutea* Schinz (so well known in South West Africa, Bechuanaland, the southern border of Southern Rhodesia, and in the Northern Transvaal) is conspecific and should be reduced to synonymy under *A. littoralis* Bak.

Welwitsch's second collecting was *A. zebrina* Bak. near Cacuaco (13 miles north-east of Luanda), in July 1854. This species has a very wide distribution in Angola, and crosses with *A. littoralis* are not rare. Also occurs in South-West Africa, eastwards to Northern and Southern Rhodesia.

A. platyphylla Bak. collected by Welwitsch near Luanda on 30 April 1857 is now in synonymy under *A. zebrina* Bak.

On 29 July 1858, Welwitsch found *A. angolensis* Bak. "on wooded

hills in the country of the Quisamas ("inter Quisamas") from Quicuxe towards Mutollo." "Mutollo" I was informed is a local native name for a type of vegetation in which a species of tree *Euphorbia* predominates, but Welwitsch might have used it as a place-name. Dr. F. A. Medonça (Centro de Botânica, Lisbon) subsequently informed me that "Mutollo", where Welwitsch probably collected *A. angolensis*, was on the old road from Quicuxe to the Bengo River, north-east of Luanda, on the few small hills near the Barra do Bengo (mouth of the R. Bengo). I did not succeed in finding plants of this species on the low wooded hills a few miles north-east of Cacuaco, 15 miles north-east of Luanda.

Welwitsch found *A. palmiformis* Bak. in April 1860 "in the more lofty rocky woods of Morro de Lopollo, Huila."

Huila is a small administrative post 15 miles south-east of Sá da Bandeira (Huila Prov.), and the Lopollo stream rises in the nearby hill (morro). I did not find the species there, but eventually found large numbers of the shrubby *A. palmiformis* about 10 miles to the north-west, on a spur of the Serra da Chela, 8 miles south-west of Sá da Bandeira (about midway to Humpata) at 6,400 ft., c. 14° 59' S., 13° 28' E. Photographs and specimens were secured.

The sixth species collected by Welwitsch was *A. andongensis* Bak. at Pungo Andongo, flowering from January to the end of April, year not stated.

Pungo Andongo is a small post in the fantastic rock formations known as the Pedras Negras, 24 miles south-east of Quizenga, 23 miles south-west of Cacuaco, Luanda Province, and about 68 miles by road from Malange, at about 9° 42' S., 15° 34' E., altitude 3,500 ft. Considerable numbers of plants were found on rock pavements and slopes, but none was in flower in July. *A. andongensis* is a plant of low shrubby growth, with stems 30—60 cm. long, (rarely 1 m.) ascending or sprawling, an inflorescence averaging 25—30 cm. long, and mostly 3-branched. In the dry material seen, racemes appear to have been capitate.

It may be mentioned here that certain plants growing in similar habitats, found much further south in the Amboim and Seles districts of Cuanza Sul, i.e. Gabela, Quibala, Cela, Amboiva and Vila Nova de Seles might prove to be forms of *A. andongensis*. These cannot be determined until plants flower with me.

The next species is *A. venenosa* Engler in *Bot. Jahrb.*, 15: 471 (1893) from "Luanda: between Kimbundu and Nyangwe—P. Pogge n. 1460, fl. 20 May 1882." Kimbundu is now Mona Quimbundo, 38 miles South-west of Henrique de Carvalho, Lunda District, Malange Prov. at about 9° 55' S., 19° 58' E. Nyangwe is a considerable distance away on the Lualaba River in the Belgian Congo.

Mr. E. Milne-Redhead informs me that the expedition of Lieut. Wissmann and P. Pogge started at Mona Quimbundo in July 1881, and went NNE, crossing the limit of the Lunda Kingdoms at about 6° 40' S., 20° 40' E. It seems therefore, that Pogge collected his specimen somewhere between Mona Quimbundo, Henrique de Carvalho, Vila Verissimo Sarmento and Portugulia near the Congo border, but it might have been in the Lusambo Territory, Kasai Province in the Belgian Congo.

Because of very bad sandy tracks and other obstacles I was unable to travel along this route. Stem if any, and habit of growth is not stated by Engler, while a photograph of the type in Berlin is not very helpful.

During his Kunene—Zambezi Expedition from August 1899 to June 1900, Baum travelled from Mossamedes toward the eastern parts of the country and back, and collected three new species of Aloe. These were described in Warburg (Baum's) *Kunene—Sambesi Expedition* 189—193 (1903), and are *A. brunneo-punctata* Engler et Gilg., *A. metallica* Engler et Gilg., and *A. baumii* Engler et Gilg.—the last named now being in synonymy under *A. zebrina* Bak.

A. brunneo-punctata was found "near Longa, above the Quirire above Minnesera, on stony dry places between woods and swamp at 1250 m. No. 698, flowered in February 1900. Allied to *A. nuttii* Bak."

Baum's map shows Minnesera just north of the confluence of the Quiriri and Longa rivers. Baum travelled northwards from Minnesera along the west side of the Longa River to Longa Village which is in Bié Province, about 56 miles east of Vila Serpa Pinto, at about 15° S., 18° 35' E. The type locality is, therefore, near or south of Longa on west side of the Longa River.

Because of deep sand I was unable to reach Longa, but from Baum's fig. 89, and from a photograph of the type material in Berlin, it is clear that *A. brunneo-punctata* is conspecific with *A. corbisieri* De Wild. in *Contrib. Fl. Katanga* 29 (1921) from Welgelegen, 35 miles south of Elisabethville, Belgian Congo.

Both of these species will have to be reduced to synonymy under *A. nuttii* Bak. (*Hook. Ic. Pl.* t 2513 (1897)), from Fwambo, near Abercorn in Northern Rhodesia. Plants from Fwambo and Abercorn have flowered in Johannesburg, and are variable in length and density of racemes. In my view, *A. brunneo-punctata* and *A. corbisieri* are merely forms of *A. nuttii* with slightly longer laxer racemes.

Baum found *A. metallica* Engler et Gilg. "only between high sandstone rocks near Kutsi (Cuchi) above Kapulo, fl. 4 May 1900, growing with Euphorbia." Cuchi is 56 miles east of Vila da Ponte, at about 14° 40' S., 17° E., but I could find no high sandstone hills in that area. Kapulo is

shown on Baum's map on the east bank of the Cuchi River, but I could not find the place, and did not find any plants resembling *A. metallica* as described.

A. paedogona Berger in *Journ. of Bot.* 44: 57 (1906) was collected by Gossweiler, flowers mostly over and fruiting in June 1903, near Malange, which is about 275 miles east of Luanda by road, at c. 9° 33' S., 16° 21' E. Gossweiler states that plants "grow in open thickets in company of high grass."

A plant was found near Malange growing in 5–6 ft. grass and proved to be a most robust form of *A. bulbicaulis* Christian. — See *Fl. Plants S. Afr.* 16: pl. 630 (1936). The Malange plant had a pseudo-bulb, (not mentioned in original description of *A. paedogona*) and an inflorescence 1.8m. high—the result of growing in very tall grass. About 15 miles westwards, near Lombe, plants growing in shorter grass produced inflorescences only 80–90 cm. tall, which is the average height.

Another species now became involved, namely, *A. congolensis* De Wildeman et Th. Dur. in *Ann. Mus. Congo* ser. 2, 1: 1, 61 (1899), collected by Dewèvre on 13 Dec. 1895, near Kimuenza, which is on the railway about 20 miles south-west of Leopoldville in the Lower Congo. Plants sent to me from that district had a kind of pseudo-bulb, and when they flowered in Johannesburg, the leaves, inflorescence, and especially the peculiar shape of the perianth indicated that they belonged to *A. paedogona* Berger, and not to *A. congolensis*. A photograph of the holotype of *A. congolensis* (kindly furnished by Professor W. Robyns, Brussels) reveals that *A. congolensis* has ensiform, long-pointed leaves only 5 cm. broad and up to 50 cm. long, which, apart from other differences, immediately distinguishes this species from *A. paedogona*.

Since the differences between *A. paedogona* and *A. bulbicaulis* are merely quantitative and not qualitative, it follows that *A. bulbicaulis* (1936) should be reduced to synonymy under the earlier described *A. paedogona* (1906).

I have now found that *A. paedogona*, in its various forms, extends from the Lower Congo to the south-eastern parts of the Belgian Congo, and from Angola to the Copper Belt of Northern Rhodesia, and eastwards to Northern Nyasaland.

The last species described from Angola was *A. milne-redheadii* Christian in *Journ. S.A. Bot.* 6: 177, pl. 18 (1940). Plants (not flowering) were collected by Mr. Milne-Redhead on 20 January 1938 on a ridge of hills between the Lupulu River and Kanyezi River which lie between the Zambezi River and the Lusavo River, in the Moxico Division of Bié Province, 7 miles west of the Northern Rhodesia border, at about 11° 30' S., 23° 56' E. This locality is 13 miles north-west of Matonchi

in Northern Rhodesia, Matonchi being 30 miles west of Mwinilunga. I could not reach the type locality, but considerable numbers of plants from Kalene Hill, were found in cultivation at Kalene Mission, 50 miles north of Mwinilunga, Northern Rhodesia, at c. $11^{\circ} 11' S.$, $24^{\circ} 11' E.$ This is about 30 miles north-east of the type locality.

During my own travels, I found that *A. hereroensis* Engler (abundant in several parts of South-West Africa) occurred in desert conditions from 5 to 20 miles north-east of Mossamedes.

Seven miles south-east of Vila Nova de Seles, Seles District, Cuanza Sul, Benguela Province (c. $11^{\circ} 28' S.$, $14^{\circ} 24' E.$) there are quantities of an undescribed shrubby Aloe, mentioned by Gossweiler in his *Carta Fitogeografica de Angola*, photo 73 (1939). This species is a shrub with unbranched stems 1—2 m. high, and with a many-branched inflorescence of almost horizontal racemes with secund flowers. The description will be completed when plants flower in Bryanston, Johannesburg.

A second species awaiting description was found near Catengue, 60 miles south-east of Benguela, at 1,700 ft., c. $13^{\circ} S.$, $13^{\circ} 45' E.$ This is also a plant of shrubby growth, and will be described when plants flower in Bryanston, Johannesburg.

Mr. Harry Hall of Kirstenbosch has found *A. dinteri* Berger (see *Aloes of S. Afr.*, 211, Fig. 211 (1950)) on the south bank of the Kunene River in South-West Africa, and there seems no reason why this species should not grow across the river in Angola.

It is also highly likely that *A. christianii* Reynolds occurs in Angola west of Matonchi which is 30 miles westwards from Mwinilunga in Northern Rhodesia.

The five awaiting description, and the eleven discussed above, bring the total to sixteen species of Aloe in Angola, plus two more probables.

The three new species that can now be described are:

Aloe guerrai Reynolds. Species nova; a *A. secundiflorae* Engler rosulis minoribus, foliis angustatis tenuibus, perianthii segmentis brevioribus; a *A. christianii* Reynolds racemis obliquis, floribus secundis differt.

Planta succulenta, acaulis vel breviter caulescens.

Folia c. 24, dense rosulata, anguste lanceolata, saepe 40 cm. longa, 6—7 cm. lata, patentia; *supra* viridia, obscure lineata, immaculata, basi plana, superne leviter canaliculata; *subtus* convexa; marginibus dentibus pungentibus deltoideis brunneis 4—5 mm. longis, 10—15 mm. distantibus armata. *Inflorescentia* paniculata, 8—10 ramosa, 90—100 cm. alta. *Racemi* circiter 20 cm. longi, sublaxi, obliqui vel fere horizontales, floribus

secundis. *Bractea* ovato-acutae, 6—8 mm. longae, 4 mm. latae, 7-nervatae, medio reflexae. *Pedicelli* saepe 5 mm. longi. *Perianthium* coccineum, 40 mm. longum, cylindrico-trigonum, circa ovarium 8 mm. diametro; *segmenta exteriora* per 10—12 mm. libera; *interiora* latiora, obtusiora. *Antherae* demum 2 mm. exsertae. *Stigma* demum 3 mm. exserta. *Ovarium* 6—7 mm. longum, 3—4 mm. diametro. (Plates VI and VII.)

HABITAT: Angola. Bié Province. 3 miles east of General Machado, c. 12° 02' S., 17° 30' E., alt. 4,500 ft., fl. 18 June 1959, Reynolds 9218 holotype (PRE), isotype (K, LUA); Benguela Prov., 6 miles west of Balombo c. 12° 21' S., 14° 42' E., alt. 4,000 ft., fl. 3 July 1959, Reynolds 9325 (PRE, LUA, K).

Our new species is named after Senhor Guilherme Guerra, Engenheiro Agrônomo. (Director of Agriculture and Forests, Luanda, Angola) who first collected and sent plants to me in 1952 from Posto do Cunje, 5 miles north of Silva Porto the capital of the District and Province of Bié. A plant collected by Dr. Guerra flowered in Johannesburg in August 1956, when it was recognised as a distinct new species.

In June and July 1959, during my travels in Angola investigating the Aloes, I found a large number of flowering plants near General Machado (about 50 miles east of Dr. Guerra's locality, Posto do Cunje) in grasslands with bush, at 4,500 ft., c. 12° 02' S., 17° 30' E.

Subsequently, it was found that *A. guerrai* occurred from about 20 miles east of General Machado westwards to Posto do Cunje and Silva Porto, Chinguar (5,500 ft.), near Nova Lisboa: and abundant near Moma, 38 miles south of Bela Vista.

On the main road inland from Lobito, *A. guerrai* was observed repeatedly from Monte Belo, 30 miles west of Balombo, to Balombo (4,000 ft., c. 12° 21' S., 14° 42' E.), and for 12 miles eastwards. North-west of Luimbale and 15—20 miles north-west of Cassongue (5,000 ft., c. 11° 51' S., 14° 55' E.), more plants were found.

A very robust form was observed in seed on 10 July, 8 miles east of Salazar in Luanda Province, on the road to Malange, c. 9° 42' S., 15° 34' E.

A. guerrai is characterized by having a divaricately branched inflorescence with oblique to sub-horizontal racemes of secund flowers. In this respect it is nearest allied to the East African species *A. secundiflora* Engler, but the latter has longer broader thicker leaves, and perianths with outer segments free for half their length.

With slightly tilted rosettes, in kind and size of leaves, and with perianth outer segments free for 10—12 mm., *A. guerrai* is nearer *A. christianii* Reynolds. The latter, however, produces a compactly branched



PLATE VI. *Aloe guerrai* Reynolds.

Plant 3 miles east of General Machado, Bié Province, Angola, c. $12^{\circ} 02' S.$, $17^{\circ} 30' E.$,
alt. 4,500 ft. Fl. 18 June 1959. Height 1 m.



PLATE VII. *A. guerrai* Reynolds.
Flowers 1/1 from bud to post-pollination stage.

inflorescence 6 feet and more high, with erect racemes.

Native name: *Chaudala* (Silva Porto).

Flowering period: May, June.

DESCRIPTION: *Plant* solitary, acaulous or with very short stem, the rosette of leaves usually with a slight tilt.

Leaves about 24, densely rosulate, narrowly lanceolate, long-pointed, the youngest suberectly spreading, the oldest spreading with apical portion slightly recurved, averaging 40 cm. long, 6—7 cm. broad at base; *upper surface* flat low down, slightly canaliculate upwards, dull green, obscurely lineate, without spots or markings; *lower surface* convex, grey-green, without spots or markings; *margins* sinuate-dentate, armed with pungent pale-brown or reddish-brown teeth that are 4—5 mm. long, 10—15 mm. apart, more crowded lower down, more distant upwards; *sap* dries yellow.

Inflorescence a branched panicle 90—100 cm. high.

Peduncle brown with a bloom, basally plano-convex and 25—30 mm. broad, divaricately about 8—10-branched from about the middle, the lowest 1—2 branches sometimes with 1—2 branchlets, and with a few sterile bracts below the racemes.

Racemes all (including the terminal) produced obliquely to almost horizontally, averaging 20 cm. long, subclaxly flowered, the buds and open flowers secund.

Bracts ovate-acute, 6—8 mm. long, 4 mm. broad, thin, dirty white, about 7-nerved, reflexed at the middle.

Pedicels averaging 5 mm. long.

Perianth scarlet with a bloom, averaging 40 mm. long, cylindric-trigonous, straight or sometimes very slightly curved, flat at base, cylindric and 8 mm. diam. across the ovary, thence trigonous upwards with the mouth slightly upturned; *outer segments* free for 10—12 mm., paler at the margins, very obscurely nerved, the apices subacute, slightly spreading; *inner segments* themselves free but dorsally adnate to the outer to beyond the middle, with broad white border and a scarlet keel, the apices more obtuse and more spreading than the outer.

Filaments lemon, the 3 inner narrower and lengthening before the 3 outer, with their *anthers* in turn exserted 2 mm.

Stigma at length exserted 3 mm.

Ovary green, 6—7 mm. long, 3—4 mm. diam.

A. grata Reynolds. Species nova, *A. mzimbanæ* Christian affinis, sed inflorescentia 2—3-ramosa longiore tenuiore, racemis capitatis, perianthio brevior supra ovario vix trigono-indentato differt.

Planta succulenta, compacta, acaulis vel breviter caulescens, mox caespitosa. *Folia* 16—20, dense rosulata, lanceolato-attenuata, 20—25 cm. longa, 7—8 cm. lata; *supra* viridia, immaculata, basi plana, superne leviter canaliculata; *subtus* convexa, prope basin maculis numerosis densis rotundis parvis albis circiter 1 mm. diam. picta; marginibus dentibus, interdum fere serratis, 2—3 mm. longis, 5—8 mm. distantibus armata.

Inflorescentia 2—3-ramosa, 70—90 cm. alta. *Racemi* capitati vel subcapitati, 8—10 cm. longi, 8 cm. diametro. *Bractae* parvae, ovato-acutae, 2 mm. longae, 1.5 mm. latae, scariosae, 1-nervatae. *Pedicelli* saepe 20 mm. longi. *Perianthium* coccineum, 25—28 mm. longum, breviter stipitatum, circa ovarium 6 mm. diam.; *segmenta exteriora* per 7 mm. libera, obscure nervata; *interiora* latiora, carinata. *Antherae* 1—2 mm. exsertae. *Stigma* demum 2—3 mm. exserta. *Ovarium* viridulum, 4 mm. longum, 2 mm. diametro. (Plates VIII and IX.)

HABITAT: Angola, Bié Province, 3 miles south of Chinguar, on Chimbandu Hill, c. 12° 35' S., 16° 20' E., alt. 5,800 ft., fl. 19 June 1959, Reynolds 9246 holotype (PRE), isotype (K, LUA).

This charming new species was found by Dr. N. R. Smuts and myself on a rocky hill known locally as Morro (hill) Chimbandu, 3 miles south of Chinguar, which is about midway between Silva Porto and Nova Lisboa, Angola.

Large numbers of plants were found, mostly on rocks, at an elevation of 5,800 feet, and mostly in dense groups of compact rosettes.

A. grata is characterized by having leaves with small crowded marginal teeth that are sometimes almost serrate; lower surface of leaves, copiously white-spotted near base, the spots being very small, circular (not elliptical or elongated) and 1 mm. in diameter. The inflorescence is simple in young plants, forked in older, and 2—3-branched in the largest specimens. Racemes are capitate or almost so, and the perianth is scarcely trigonously indented above the ovary. The 2 mm. long bracts are 1-nerved.

A. mizimbana Christian appears to be the nearest ally, but this species has marginal teeth more spaced, a shorter inflorescence, longer racemes, and perianths that are markedly trigonously indented above the ovary. The shape of the flowers is also different.

A. bukobana Reynolds, from Bukoba on the western shore of Lake Victoria, is another ally, but differs in having larger marginal teeth, a much more branched inflorescence with longer laxer racemes, and perianths markedly trigonously indented above the ovary.

DESCRIPTION: *Plant* acaulescent or with short stem, forming dense groups of rather compact rosettes, mostly on rocks.

Plants in natural habitat on Chimbo Hill, 1 mile south of Tumbuco, between Silva Porto and Nova Lusitana, Angola, c. 12° 35' S., 16° 20' E., alt. 5,800 ft. Fl. 19 June 1959. Height 70—90 cm.

PLATE VIII. 4. *Spina Leyboldii*





FIG. 1.

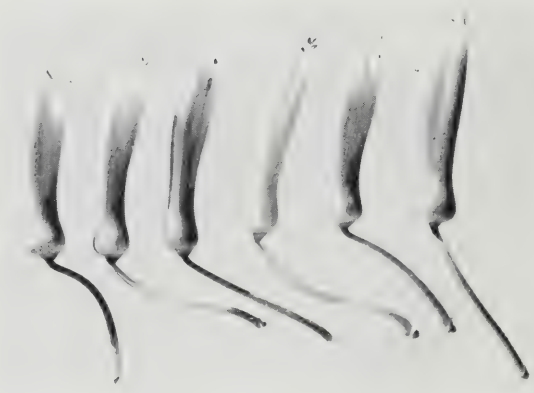


FIG. 2.

PLATE IX. *A. grata* Reynolds.

FIG. 1. Flowers 1/1 from bud to post-pollination stage.

FIG. 2. Flowers 1/1 gathered at random, showing variation.

Leaves 16—20, densely rosulate, lanceolate-attenuate, about 20—25 cm. long, 7—8 cm. broad; *upper surface* green with reddish-brown tinge, without spots or markings, flat low down, very slightly canaliculate upwards; *lower surface* convex, paler glaucous-green with numerous crowded spots in lower quarter, the spots very pale green (almost white) circular and about 1 mm. diam.; *margins* sinuate-dentate, sometimes almost serrate, the teeth varying from 2—3 mm. long, 5—8 mm. apart; *sap* dries pale yellow.

Inflorescence 2—3-branched, 70—90 cm. high.

Peduncle brown, basally flattened and 10—12 mm. broad, simple in young plants, forked in older, 3-branched in old plants, usually branched above the middle.

Racemes capitate or subcapitate, 8—10 cm. long, 8 cm. diam., the axis pedicels and perianths scarlet, the buds grey-green tipped and spreading horizontally or slightly nutant, open flowers cernuous to sub-pendulous.

Bracts very small, ovate-acute, 2 mm. long, 1.5 mm. broad, thin, scarious, 1-nerved.

Pedicels scarlet, averaging 20 mm. long, suberectly spreading, the apices nutant.

Perianth scarlet, 25—28 mm. long, shortly stipitate, 6 mm. diam. across the ovary, narrowed to 5 mm. above ovary, thence trigonously enlarging to the throat and slightly contracted at the mouth; *outer segments* free for 7 mm., obscurely nerved, the apices slightly spreading; *inner segments* broader than the outer, with broad pale marginal border and scarlet keel, the apices more obtuse.

Filaments pale lemon, filiform-flattened, the 3 inner narrower and lengthening before the 3 outer with their *anthers* in turn exserted 1—2 mm.

Stigma at length exserted 2—3 mm.

Ovary green, 4 mm. long, 2 mm. diam.

A. rupicola Reynolds. Species nova, *A. volkensii* Engler affinis, sed caulibus levibus, foliis brevioribus lineatis, inflorescentia multo minus ramosa, pedicellis brevioribus, perianthio longiore tenuiore leviter clavato differt.

Planta frutescens, e basi ramosa, caulibus saepe 2—3 m., interdum 4—5 m. longis. *Folia* c. 40, dense rosulata, saepe 30—35 cm. longa, 6 cm. lata, sensim attenuata, patentia; *supra* viridia, obscure lineata, planiuscula; *subtus* convexa, lineata; marginibus dentibus pungentibus 4—5 mm. longis, 10 mm. distantibus armata. *Inflorescentia* ramosa, 70—90 cm. alta. *Pedunculus* basi plano-convexus et 25 mm. latus, saepe 3—5-ramosus. *Racemi* subdensi, cylindrici, 15—18 cm. longi,

8—9 cm. diam. *Bracteae* ovato-acutae, 9 mm. longae, 5 mm. latae, obscure nervatae. *Pedicelli* 12 mm. longi. *Perianthium* aurantiacum, saepe 42 mm. longum, cylindrico-trigonum, levissime clavatum, circa ovarium 7 mm. diametro; *segmenta exteriora* per 21 mm. libera (tubus 21 mm.); *segmenta interiora* latiora carinata. *Antherae* per 2—3 mm. exsertae. *Stigma* demum 3 mm. exserta. *Ovarium* viridulum, 8 mm. longum, 4 mm. diametro. (Plates X and XI.)

HABITAT: Angola, Bié Province, on rocky hill 3 miles south of Chinguar, c. 12° 35' S., 16° 20' E., alt. 5,850 ft., fl. 19 June 1958, Reynolds 9243 holotype (PRE), isotype (K, LUA).

A. rupicola is a second new species found by Dr. N. R. Smuts and myself on Chimbango Hill, 3 miles south of Chinguar which is about midway between Silva Porto and Nova Lisboa, Angola. It was found mostly along the top of the ridge, with *A. grata* a little lower down. Although both species flower at the same time, no hybrids were seen.

A. rupicola is a shrub with stems averaging 2—3 m. tall, but occasionally reaching 4—5 m., and mostly branched from base. Old dried leaf remains are not persistent. Leaves are obscurely lineate on upper surface, and more prominently lineate on lower surface, especially in lower half of leaf, while perianths are very slightly clavate.

Its nearest ally appears to be *A. volkensii* Engler (Tanganyika Territory) but the latter differs in having stems with old dried leaf remains persistent, leaves longer and not lineate, inflorescence much more copiously branched, longer pedicels, and shorter perianths that are not slightly clavate.

DESCRIPTION: A shrub with stems 2—3 m. (sometimes 4—5 m.) tall, about 10—12 cm. thick, mostly branched from base.

Leaves about 40, densely rosulate, averaging 30—35 cm. long, 6 cm. broad, plus 10 cm. of dried brittle purplish apex, the youngest sub-erectly spreading, the oldest spreading; *upper surface* green, rather flat, obscurely lineate, without spots; *lower surface* slightly rounded, green, rather prominently lineate low down, the lines becoming more obscure upwards; *margins* sinuate-dentate, armed with pungent reddish brown teeth averaging 4—5 mm. long and 10 mm. apart at middle of leaf, the teeth smaller and more crowded near base. *Sap* dries pale yellow.

Inflorescence a branched panicle 70—90 cm. high.

Peduncle plano-convex and 25 mm. broad at base, mostly 3—5-branched (rarely 7—8) from the middle.

Racemes subdensely flowered, cylindric, 15—18 cm. long, 8—9 cm.

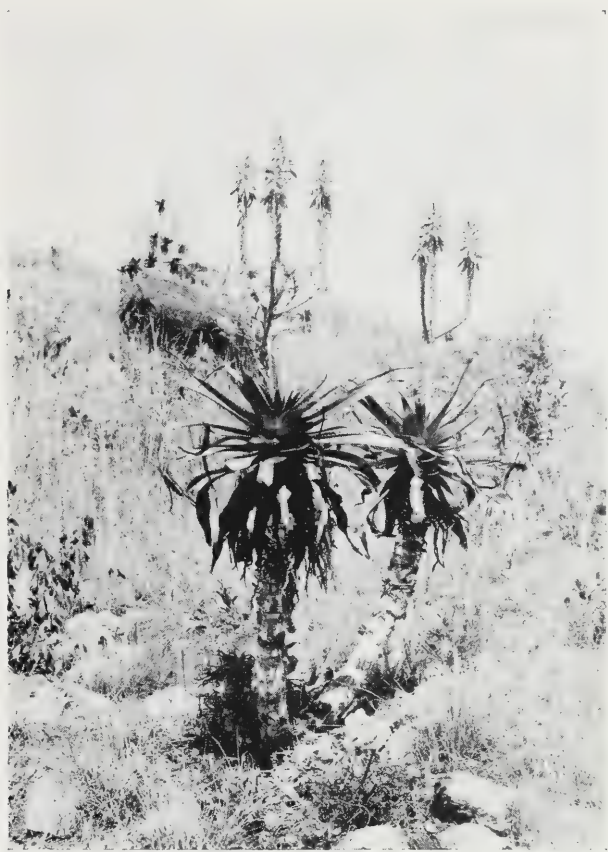


PLATE X. *A. rupicola* Reynolds.

Plants on Chimbango Hill, 3 miles south of Chinguar, midway between Silva Porto and Nova Lisboa, Angola, c. $12^{\circ} 35' \text{ S.}$, $16^{\circ} 20' \text{ E.}$, alt. 5,850 ft. Fl. 19 June 1959.
Height 2 m.



FIG. 1.



FIG. 2.

PLATE XI. *A. rupicola* Reynolds.

FIG. 1. Flowers 1/1 from bud to post-pollination stage.

FIG. 2. Flowers 1/1 gathered at random, showing variation.

diam., youngest buds grey-tipped suberect, older horizontally disposed, open flowers nutant to subpendulous.

Bracts ovate-acute, averaging 9 mm. long, 5 mm. broad, obscurely nerved, clasping the pedicel.

Pedicels lowest averaging 12 mm. long.

Perianth orange-scarlet, averaging 42 mm. long, cylindric-trigonus, slightly clavate, 7 mm. diam. across the ovary, thence trigonously enlarging upwards; *outer segments* free to the middle (free for 21 mm., tube 21 mm.), paler at margins, apices sub-acute slightly spreading; *inner segments* themselves free but dorsally adnate to the outer to the middle, with broad white border and with orange-scarlet keel, the apices more obtuse and slightly more spreading than the outer.

Filaments very pale lemon, filiform-flattened, the 3 inner narrower and lengthening before the 3 outer with their *anthers* in turn exerted 2—3 mm.

Stigma at length exerted 3 mm.

Ovary pale green, 8 mm. long, 4 mm. diam.

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